UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MEMORANDUM

SUBJECT: Request for a Removal Action at the Jones Road Ground Water Plume, Harris County, Texas

FROM: for J. Chris Petersen
Gregory E. Fife, Senior On-Scene Coordinator
Removal Site Team (6SF-RR)

TO: Samuel Coleman, P.E., Director
Superfund Division (6SF)

THRU: for J. Chris Petersen
Ragan R. Broyles
Response and Prevention Branch (6SF-R)

1. PURPOSE

This memorandum requests approval for a Removal Action pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. §§9601 et seq., at the Jones Road Ground Water Site, located in Harris County, Texas. The proposed action includes the construction of water mains and connection to the homes and businesses within the Site boundaries.

This action meets the criteria for initiating a removal action under the National Contingency Plan (NCP), 40 CFR §300.415. This action is expected to require less than twelve months and $2 million to complete.

II. SITE CONDITIONS AND BACKGROUND

Cerclis # TXN000605460
Category of Removal: Time Critical
Site ID #06NK

A. Site Description

1. Removal Site Evaluation

The Jones Road Ground Water Plume Site ("Site") is a ground water plume contaminated with tetrachloroethylene from the former Bell Dry Cleaners at 11600 Jones Road and other potential sources in northwest Harris County, Texas. The plume was originally detected in a public water supply well between Jones Road and Tower Oaks Boulevard. There are currently 33 wells with contamination concentrations above the Maximum Contaminant Level (MCL) of 5 micrograms per liter (µg/l). Continued contaminant migration has the potential to impact additional wells.

2. Physical Location

The origination of the plume is believed to be the Bell Dry Cleaners at 11600 Jones Road. The Site boundaries are roughly one block east and two blocks west of Jones Road beginning just north of the intersection with Neeshaw Drive and continuing to just south of the intersection with Woodledge Drive. (See Attachment 2, Site Map) The Site includes structures on Tower Oaks Blvd, Timbercrest Dr., Tall Timbers Dr., Forrest (sic) Valley Dr., Timber Hollow Dr., Echo Springs Ln., Possum Hollow Ln., Oak Valley Dr., Barely Ln., and Jones Road.

Latitude 29°56'29" N, Longitude -95°35'08" W

3. Site Characteristics

The Site includes approximately 150 residences and buildings. The area is a mix of single family homes, child care centers, commercial businesses and strip malls. The area is an unincorporated part of Harris County. All the residents and business rely on well water in the area since no service is provided by a city or municipal utility district. The plume is documented to extend from the southern end of Echo Springs Ln. to Tower Oaks Blvd and from Timber Hollow to the eastern side of Jones Road.

4. Releases or threatened release into the environment of a hazardous substance, pollutant or contaminant

Tetrachloroethylene has been detected in wells above the MCL in at least 33 wells within the Site boundaries. Tetrachloroethylene is a hazardous substance listed in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14). Tetrachloroethylene is also known as perchloroethylene, PCE, and perc. Tetrachloroethylene is a manufactured chemical used in dry cleaning and metal degreasing. Exposure to very high concentrations of Tetrachlorethylene can cause dizziness, headaches, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. The Department of Health and Human Services (DHHS) has determined that tetrachloroethylene may reasonably be anticipated to be a carcinogen. Spills and other practices at the former dry-cleaning facility and other potential sources lead to the contamination of the groundwater plume. (See Attachment 3, Material Safety Data Sheet for Tetrachloroethylene and Attachment 4, ATSDR ToxFAQ)

5. NPL Status

The Site is on the National Priorities List (NPL). The proposed action is consistent with the Remedial goals.

6. Maps, Pictures and other graphic representations

Attachment 1 Enforcement Addendum
Attachment 2 Site Map
Attachment 3 Material Safety Data Sheet for Tetrachloroethylene
Attachment 4 Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQ for Tetrachloroethylene

B. Other Actions to Date

1. Previous actions

A total of 231 water wells within a half-mile radius of the former Bell facility have been sampled for PCE and other volatile contaminants. Approximately 150 wells (depending upon access and current conditions) are currently being sampled on a quarterly schedule. Thirty-three (33) of these wells have PCE concentrations at or above the MCL of 5 μg/L and filtration systems have been installed on these wells. An additional 10 wells have PCE concentrations higher than the minimum quantitation level (MQL) but lower than the MCL.

2. Current actions

Twelve (12) additional monitor wells will be installed during the mobilization planned for the Summer of 2005. Ten (10) of the wells will be installed using mud rotary drilling with nine (9) of these wells targeted for the Chicot aquifer and one (1) targeted for the Evangeline aquifer. Two (2) of the wells will be installed using rotosonic drilling targeting the Chicot aquifer. The ten (10) mud rotary installed monitor wells are located in and around the impacted neighborhood to provide monitoring locations for Chicot water level fluctuations, and also chemical data for both the Chicot and Evangeline aquifers. The two (2) monitoring wells installed using rotosonic drilling are located in the vicinity of the Bell site, one on the north side of the building and one across Jones Road to the west.

C. State and Local Authorities' Roles

1. State and local actions to date

The EPA has provided funding to the TCEQ to conduct the Remedial Investigation/Feasibility Study for the Jones Road site. The TCEQ began field activities on August 25, 2003, for the first phase of the remedial investigation. Thirty-seven cone penetrometer (CPT) test borings and three monitor wells were installed during a two week period. Groundwater and soil samples were collected. In addition, Harris County has been an active participant in the community relations activities for this site.

2. Potential for continued State/Local response

The TCEQ will continue to perform the Remedial Investigation/Feasibility Study for this site. In addition, Harris County, through the Public Infrastructure Department, will review the pipeline design and provide assistance in meeting County codes for the pipeline installation.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

The current conditions at the Site meet the following factors which indicate that the Site is a threat to the public health, welfare and the environment and a removal action is appropriate under Section 300.415(b)(2) of the National Contingency Plan. Any or all of these factors may be present at the Site yet any one of these factors may determine the appropriateness of a removal action.

1. Actual or Potential Contamination of Drinking Water Supplies or Sensitive Ecosystems. NCP Section 300.415(b)(2)(ii)

In December, 2000, the Texas Commission on Environmental Quality found tetrachloroethylene in a routine sample from a public well supplying a childcare facility and at least 14 other connections. A total of 231 water wells within a half-mile radius of the former Bell facility have been sampled for the PCE. Approximately 150 wells (depending upon access and current conditions) are currently being sampled on a quarterly schedule. Thirty-three (33) of these wells have PCE concentrations at or above the MCL of 5 μg/L and filtration systems have been installed on these wells. An additional 10 wells have PCE concentrations higher than the minimum quantitation level (MQL) but lower than the MCL. Tetrachloroethylene concentrations in private and public water supply wells ranged from below the MQL to 230 μg/L, with samples from 2 wells exceeding 50 μg/L. Concentrations of PCE at the former Bell site range from 19,000 μg /L to below the MQL. Additional compounds that have been identified in groundwater samples from monitoring wells at the former Bell site include compounds that are consistent with the degradation of PCE, specifically, TCE (1,800 μg/L), DCE (3,000 μg/L) and VC (160 μg/L). The EPA MCL for tetrachloroethylene in drinking water under the Safe Drinking Water Act is 5 μg/L.

Documented leaking equipment from the Bell Dry Cleaner has lead to the contamination of the Chicot aquifer. Within the Site, approximately 150 residences and business are serviced from wells screened in the Chicot aquifer.

2. The Availability of other Appropriate Federal or State Response Mechanisms to Respond to the Release. NCP Section 300.415(b)(2)(vii)

TCEQ has requested EPA assistance because existing State resources will not ensure a timely response action. Although the TCEQ has requested that EPA take the lead for the Site, they have indicated continued interest and commitment to participate in the proposed removal action and provide additional support through the existing community relations mechanisms.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances, pollutants or contaminants from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed actions

1. Proposed Action Description

The proposed removal action involves the design and installation of a water main system. The system will be connected to an existing water supply line from a Municipal Utility District (MUD) or other water supply authority. The Harris County Public Infrastructure Department will review and approve the design and construction of the system. Design of the water supply line will include taps on the main line to allow connections to the residences and businesses. For those residences and businesses that agree to connect to the water line, the buildings will be plumbed and disconnected from the existing water well. Trenches and any disturbance of sidewalks, driveways, or other structures will be restored.

2. Contribution to remedial performance

The proposed action is done in cooperation with the Remedial Program and will satisfy a remedial action objective to prevent exposure to the contaminated ground water. The proposed action will also save costs by eliminating the quarterly sampling events for approximately 150 individual wells. This action is also consistent with the expected long-term remedial action by reducing the horizontal and vertical spreading of the contaminants in the aquifer as a result of ongoing pumping from the private wells, and also expedite the restoration of the aquifer by providing the flexibility for additional remedial alternatives.

3. Description of alternative technologies

Providing an alternate water source by drilling into and screening the deeper Evangeline aquifer was also considered. However, there is a risk that any new wells drilled into the Evangeline may create a conduit for the spread of contamination from the Chicot aquifer into the Evangeline. In addition, Harris County has implemented a long-term water management strategy

that will reduce the reliance on ground water with a shift to a surface water supply to reduce further land subsidence. The proposed action is consistent with these long-term management goals rather than drilling into the Evangeline.

4. Applicable or relevant and appropriate requirements (ARAR)

This removal action will be conducted to eliminate the actual or potential exposure to hazardous substance, pollutant or contaminant to the environment, pursuant to CERCLA, 42 U.S.C. § 9601 et seq., and in a manner consistent with the National Contingency Plan (NCP), 40 CFR Part 300, as required at 33 U.S.C. § 1321(c)(2) and 42 U.S.C. § 9605. Pursuant to 40 CFR Part 300.415(j), fund-financed removal actions under CERCLA § 104 and removal actions pursuant to CERCLA § 106 shall, to the extent practicable considering the exigencies of the situation, attain the applicable or relevant and appropriate requirements under Federal environmental law.

5. Project Schedule

The duration of the installation of the water main is expected to be completed within three months from the initiation of the action. An additional two months are anticipated until the majority of the residences and businesses are connected to the system. It is anticipated that some difficulties with access and other issues may arise that delay the installation on some individual lines.

B. Estimated Costs

Extramural Costs

Cleanup Contractor	$1,500,000
START	$170,000
Total Extramural	$1,670,000
Site Contingency	$250,000
TOTAL CEILING	$1,920,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If this action is not taken at the Site, the potential for human exposure to contaminants at the Site will remain unabated. People will continue to ingest and be exposed to the tetrachloroethylene. The plume is expected to continue to migrate and contaminate additional wells, exposing more people to the contamination. The remedial options will be limited and may result in longer and more costly action.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues associated with this site.

VIII. ENFORCEMENT

For administrative purposes, information concerning confidential enforcement strategy for this Site is contained in the Enforcement Attachment #1. The total cost for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be $3,027,582.

(Direct Cost) + (Other Indirect Costs) + 42.14%(Direct + Indirect Costs) =Estimated EPA Cost

$1,920,000 + $210,000 + .4214($1,920,000 + $210,000) = $3,027,582

Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rated expressed as a percentage of sute-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2002. The estimates do not include pre-judgement interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only, and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor the deviation of actual total costs from this estimate will affect the United States' right to cost recover.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Jones Road Ground Water Plume Site, in Harris County, Texas, developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

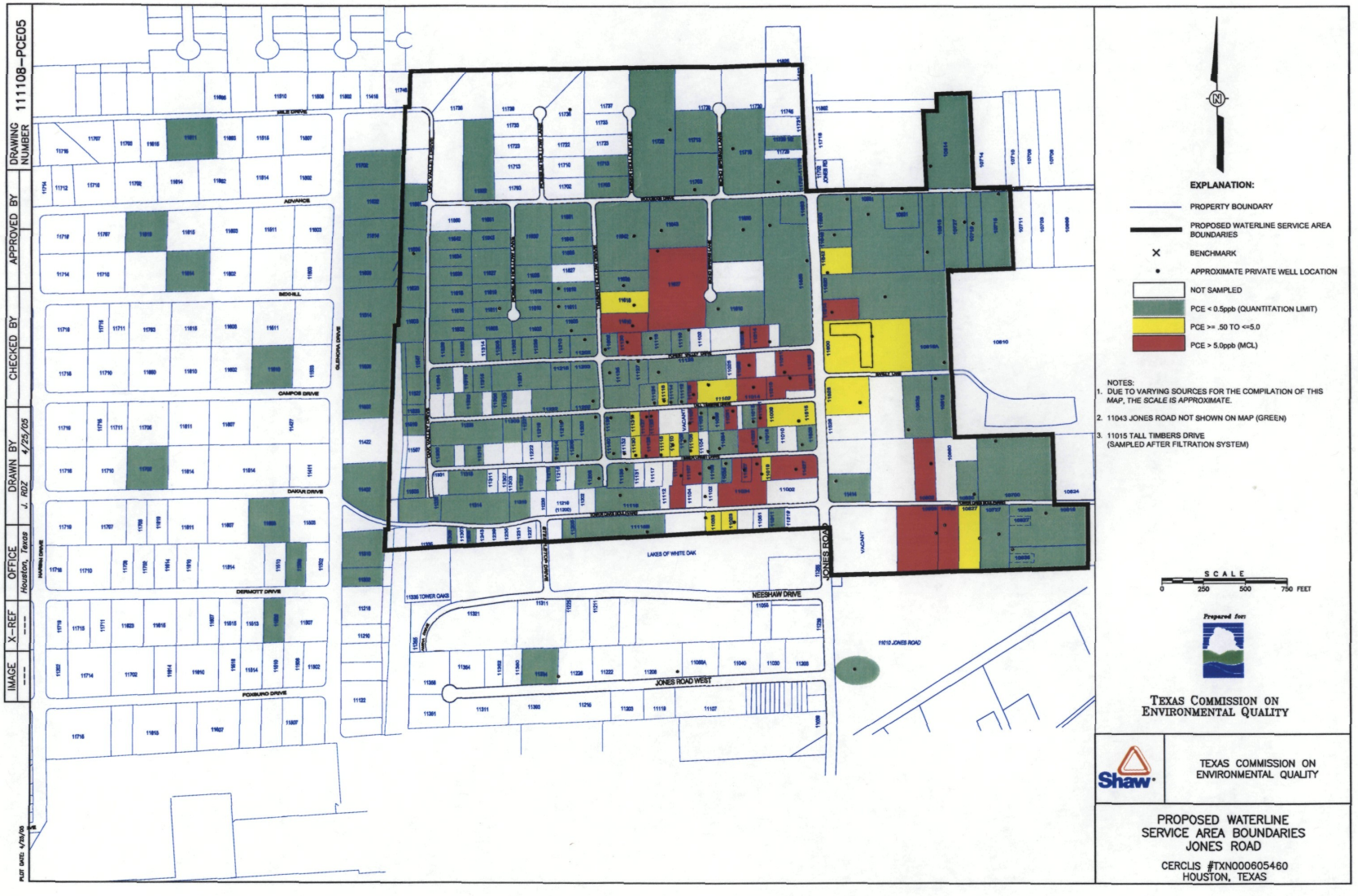
Conditions at the Site meet the criteria as defined by 40 CFR Section 300.415(b)(2) of the NCP for a removal, and I recommend your approval of the proposed removal action. The total project ceiling will be $1,920,000.

APPROVED John R. Hepola, for Sam Coleman DATE 7/27/05

ATTACHMENT 1

ENFORCEMENT ATTACHMENT TO THE ACTION MEMORANDUM

NOTE: This document has been withheld as Enforcement Confidential and is located in Separate 'CONFIDENTIALLY FILING" at U.S. EPA, Region 6


DRAWING NUMBER 111108-PCE05
APPROVED BY
CHECKED BY
DRAWN BY J. ROZ 4/25/05
OFFICE Houston, Texas
X-REF ---
IMAGE ---
PLOT DATE: 4/29/05
ADVANCE
BIDWELL
CAMPOS DRIVE
DAKAR DRIVE
DERMOTT DRIVE
FOSBURG DRIVE
GLENORA DRIVE
HARRIS DRIVE
LAKES OF WHITE OAK
JONES ROAD
JONES ROAD WEST
MEESHAW DRIVE
11335 TOWER OAKS
11010 JONES ROAD
VACANT
EXPLANATION:
PROPERTY BOUNDARY
PROPOSED WATERLINE SERVICE AREA BOUNDARIES
BENCHMARK
APPROXIMATE PRIVATE WELL LOCATION
NOT SAMPLED
PCE < 0.5ppb (QUANTITATION LIMIT)
PCE >= .50 TO <=5.0
PCE > 5.0ppb (MCL)
NOTES:
1. DUE TO VARYING SOURCES FOR THE COMPILATION OF THIS MAP, THE SCALE IS APPROXIMATE.
2. 11043 JONES ROAD NOT SHOWN ON MAP (GREEN)
3. 11015 TALL TIMBERS DRIVE (SAMPLED AFTER FILTRATION SYSTEM)
SCALE
0 250 500 750 FEET
Prepared for:
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Shaw
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
PROPOSED WATERLINE SERVICE AREA BOUNDARIES
JONES ROAD
CERCLIS #TXN000605460
HOUSTON, TEXAS

MSDS Number: **T0767** * * * * * *Effective Date: **05/08/03*** * * * * * *Supercedes: **08/02/00***

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

Mallinckrodt CHEMICALS J.T.Baker

24 Hour Emergency Telephone 908-859-2151
CHEMTREC 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582 2537) for assistance.

TETRACHLOROETHYLENE

1. Product Identification

Synonyms: ethylene tetrachloride; tetrachloroethene; perchloroethylene; carbon bichloride; carbon dichloride
CAS No.: 127-18-4
Molecular Weight: 165.83
Chemical Formula: Cl2C:CCl2
Product Codes:
J.T. Baker: 9218, 9360, 9453, 9465, 9469
Mallinckrodt: 1933, 8058

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Tetrachloroethylene	127-18-4	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure.

J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Cancer Causing)
Flammability Rating: 0 - None
Reactivity Rating: 1 - Slight
Contact Rating: 2 - Moderate
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: Blue (Health)

Potential Health Effects

Inhalation:
Irritating to the upper respiratory tract. Giddiness, headache, intoxication, nausea and vomiting may follow the inhalation of large amounts while massive amounts can cause breathing arrest, liver and kidney damage, and death. Concentrations of 600 ppm and more can affect the central nervous system after a few minutes.
Ingestion:
Not highly toxic by this route because of low water solubility. Used as an oral dosage for hookworm (1 to 4 ml). Causes abdominal pain, nausea, diarrhea, headache, and dizziness.
Skin Contact:
Causes irritation to skin. Symptoms include redness, itching, and pain. May be absorbed through the skin with possible systemic effects.
Eye Contact:
Causes irritation, redness, and pain.
Chronic Exposure:
May cause liver, kidney or central nervous system damage after repeated or prolonged exposures. Suspected cancer risk from animal studies.
Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance. The use of alcoholic beverages enhances the toxic effects.

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4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Ingestion:

Aspiration hazard. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:
Wash skin with soap or mild detergent and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:
Do not administer adrenaline or epinephrine to a victim of chlorinated solvent poisoning.

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5. Fire Fighting Measures

Fire:
Not considered to be a fire hazard but becomes hazardous in a fire situation because of vapor generation and possible degradation to phosgene (highly toxic) and hydrogen chloride (corrosive). Vapors are heavier than air and collect in low-lying areas.

Explosion:
Not considered to be an explosion hazard. Containers may explode when involved in a fire.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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7. Handling and Storage

Store in a cool, dry, ventilated area away from sources of heat or ignition. Isolate from flammable materials. Protect from direct sunlight. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
100 ppm (TWA), 200 ppm (ceiling),
300 ppm/5min/3-hour (max)

-ACGIH Threshold Limit Value (TLV):
25 ppm (TWA), 100 ppm (STEL); listed as A3, animal carcinogen
Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.
Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.
Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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9. Physical and Chemical Properties

Appearance:
Clear, colorless liquid.
Odor:
Ethereal odor.
Solubility:
0.015 g in 100 g of water.
Specific Gravity:
1.62 @ 20C/4C
pH:
No information found.

% Volatiles by volume @ 21C (70F):
100
Boiling Point:
121C (250F)
Melting Point:
-19C (-2F)
Vapor Density (Air=1):
5.7
Vapor Pressure (mm Hg):
18 @ 25C (77F)
Evaporation Rate (BuAc=1):
0.33 (trichloroethylene = 1)

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10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Slowly decomposed by light. Deteriorates rapidly in warm, moist climates.
Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition. Hydrogen chloride gas and phosgene gas may be formed upon heating. Decomposes with moisture to yield trichloroacetic acid and hydrochloric acid.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Strong acids, strong oxidizers, strong alkalis, especially NaOH, KOH; finely divided metals, especially zinc, barium, lithium. Slowly corrodes aluminum, iron and zinc.
Conditions to Avoid:
Moisture, light, heat and incompatibles.

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11. Toxicological Information

Oral rat LD50: 2629 mg/kg; inhalation rat LC50: 34.2 g/m3/8H; investigated as a tumorigen, mutagen, reproductive effector.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Tetrachloroethylene (127-18-4)	No	Yes	2A

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12. Ecological Information

Environmental Fate:
When released into the soil, this material is expected to quickly evaporate. When released into the soil, this material may leach into groundwater. When released into the soil, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. When released into water, this material is not expected to biodegrade. This material is not expected to significantly bioaccumulate. When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals.
Environmental Toxicity:
The LC50/96-hour values for fish are between 1 and 10 mg/l. The LC50/96-hour values for fish are between 10 and 100 mg/l. This material is expected to be toxic to aquatic life.

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13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1
UN/NA: UN1897
Packing Group: III
Information reported for product/size: 20L

International (Water, I.M.O.)

Proper Shipping Name: TETRACHLOROETHYLENE
Hazard Class: 6.1
UN/NA: UN1897
Packing Group: III
Information reported for product/size: 20L

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15. Regulatory Information

--------\Chemical Inventory Status - Part 1\---------------------------------

Ingredient	TSCA	EC	Japan	Australia

Tetrachloroethylene (127-18-4)	Yes	Yes	Yes	Yes

\-------\Chemical Inventory Status - Part 2\----------

Ingredient	Korea	--Canada-- DSL	NDSL	Phil.
Tetrachloroethylene (127-18-4)	Yes	Yes	No	Yes

\-------\Federal, State & International Regulations - Part 1\----------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.
Tetrachloroethylene (127-18-4)	No	No	Yes	No

\-------\Federal, State & International Regulations - Part 2\----------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Tetrachloroethylene (127-18-4)	100	U210	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Pure / Liquid)

WARNING:
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

Australian Hazchem Code: 2[Z]
Poison Schedule: None allocated.
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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16. Other Information

NFPA Ratings: Health: **2** Flammability: **0** Reactivity: **0**
Label Hazard Warning:
WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS. SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure.
Label Precautions:
Do not get in eyes, on skin, or on clothing.
Do not breathe vapor or mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Label First Aid:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is

difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases call a physician.

Product Use:
Laboratory Reagent.

Revision Information:
No Changes.

Disclaimer:
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Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.
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Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

CONTENTS

RELATED RESOURCES

A-Z INDEX

ATSDR RESOURCES

September 1997

ToxFAQs™ for Tetrachloroethylene (PERC)

(Tetracloroetileno)

CAS# 127-18-4

This fact sheet answers the most frequently asked health questions about tetrachloroethylene (PERC). For more information, you may call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Tetrachloroethylene is a manufactured chemical used for dry cleaning and metal degreasing. Exposure to very high concentrations of tetrachloroethylene can cause dizziness, headaches, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. Tetrachloroethylene has been found in at least 771 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is tetrachloroethylene?

Tetrachloroethylene is a manufactured chemical that is widely used for dry cleaning of fabrics and for metal-degreasing. It is also used to make other chemicals and is used in some consumer products.

Other names for tetrachloroethylene include perchloroethylene, PCE, and tetrachloroethene. It is a nonflammable liquid at room temperature. It evaporates easily into the air and has a sharp, sweet odor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part tetrachloroethylene per million parts of air (1 ppm) or more, although some can smell it at even lower levels.

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What happens to tetrachloroethylene when it enters the environment?

- Much of the tetrachloroethylene that gets into water or soil

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evaporates into the air.
- Microorganisms can break down some of the tetrachloroethylene in soil or underground water.
- In the air, it is broken down by sunlight into other chemicals or brought back to the soil and water by rain.
- It does not appear to collect in fish or other animals that live in water.

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How might I be exposed to tetrachloroethylene?

- When you bring clothes from the dry cleaners, they will release small amounts of tetrachloroethylene into the air.
- When you drink water containing tetrachloroethylene, you are exposed to it

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How can tetrachloroethylene affect my health?

High concentrations of tetrachloroethylene (particularly in closed, poorly ventilated areas) can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death.

Irritation may result from repeated or extended skin contact with it. These symptoms occur almost entirely in work (or hobby) environments when people have been accidentally exposed to high concentrations or have intentionally used tetrachloroethylene to get a "high."

In industry, most workers are exposed to levels lower than those causing obvious nervous system effects. The health effects of breathing in air or drinking water with low levels of tetrachloroethylene are not known.

Results from some studies suggest that women who work in dry cleaning industries where exposures to tetrachloroethylene can be quite high may have more menstrual problems and spontaneous abortions than women who are not exposed. However, it is not known if tetrachloroethylene was responsible for these problems because other possible causes were not considered.

Results of animal studies, conducted with amounts much higher than those that most people are exposed to, show that tetrachloroethylene can cause liver and kidney damage. Exposure to very high levels of tetrachloroethylene can be toxic to the unborn pups of pregnant rats and mice. Changes in behavior were observed in the offspring of rats that breathed high levels of the chemical while they were pregnant.

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How likely is tetrachloroethylene to cause cancer?

The Department of Health and Human Services (DHHS) has

determined that tetrachloroethylene may reasonably be anticipated to be a carcinogen. Tetrachloroethylene has been shown to cause liver tumors in mice and kidney tumors in male rats.

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Is there a medical test to show whether I've been exposed to tetrachloroethylene?

One way of testing for tetrachloroethylene exposure is to measure the amount of the chemical in the breath, much the same way breath-alcohol measurements are used to determine the amount of alcohol in the blood.

Because it is stored in the body's fat and slowly released into the bloodstream, tetrachloroethylene can be detected in the breath for weeks following a heavy exposure.

Tetrachloroethylene and trichloroacetic acid (TCA), a breakdown product of tetrachloroethylene, can be detected in the blood. These tests are relatively simple to perform. These tests aren't available at most doctors' offices, but can be performed at special laboratories that have the right equipment.

Because exposure to other chemicals can produce the same breakdown products in the urine and blood, the tests for breakdown products cannot determine if you have been exposed to tetrachloroethylene or the other chemicals.

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Has the federal government made recommendations to protect human health?

The EPA maximum contaminant level for the amount of tetrachloroethylene that can be in drinking water is 0.005 milligrams tetrachloroethylene per liter of water (0.005 mg/L).

The Occupational Safety and Health Administration (OSHA) has set a limit of 100 ppm for an 8-hour workday over a 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) recommends that tetrachloroethylene be handled as a potential carcinogen and recommends that levels in workplace air should be as low as possible.

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Glossary

Carcinogen: A substance with the ability to cause cancer.

CAS: Chemical Abstracts Service.

Milligram (mg): One thousandth of a gram.

Nonflammable: Will not burn.

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References

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Managing Hazardous Materials Incidents. Volume III – Medical Management Guidelines for Acute Chemical Exposures: Tetrachloroethylene (PERC). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Toxicological Profile for tetrachloroethylene. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

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Where can I get more information?

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

For more information, contact:

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